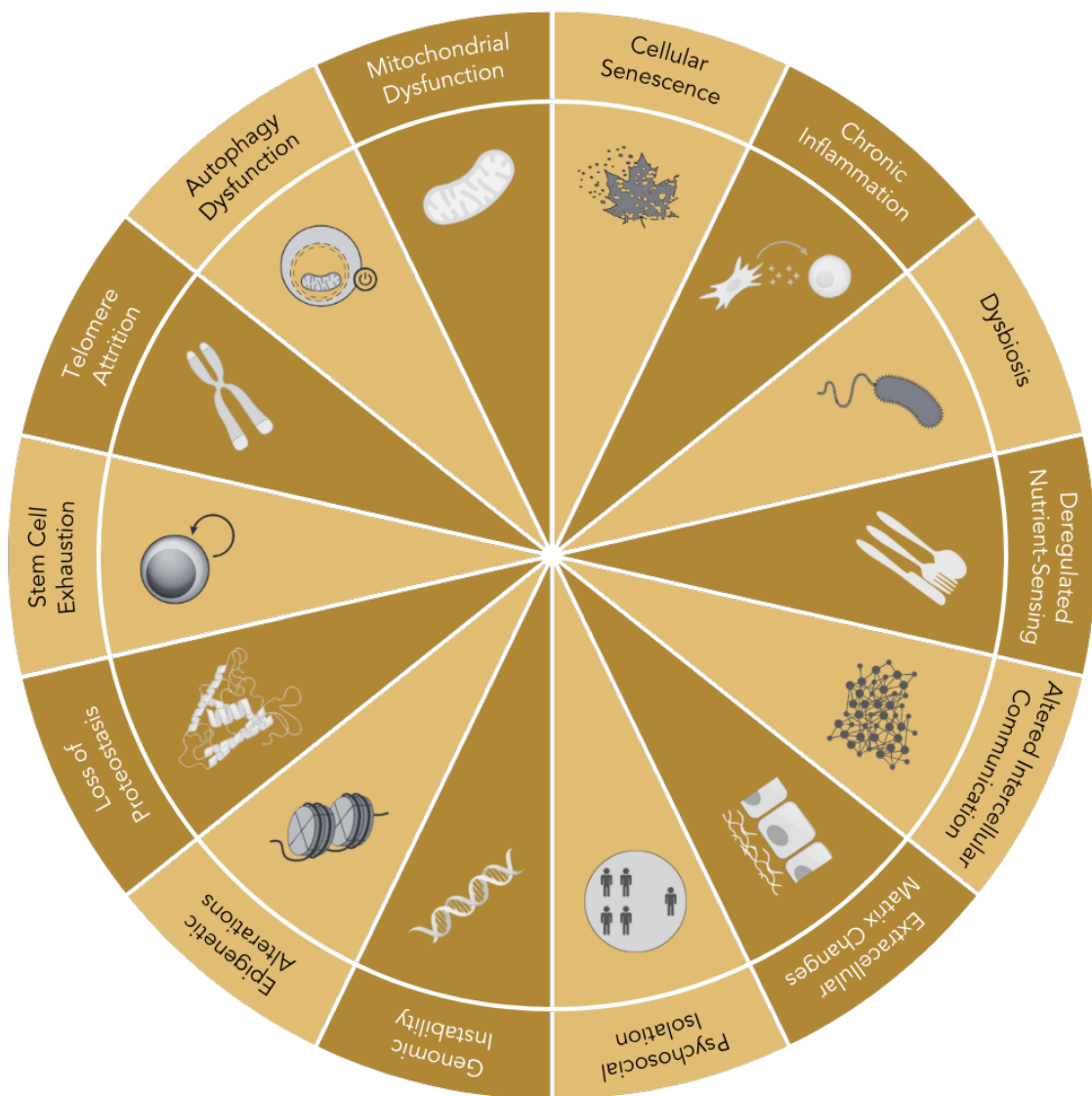


NIANCE®

SWITZERLAND

ADDRESSING THE 14 HALLMARKS OF AGING



The NIANCE Beauty and Longevity White Paper

Preface

NIANCE is at the forefront of the holistic beauty and wellness industry, driven by a commitment to scientific excellence and innovation. Our products are meticulously formulated using high-quality, bioactive and natural ingredients that are scientifically proven to address the root causes of aging. By integrating advanced biotechnological ingredients, microbiome-supporting compounds, and other innovative solutions, NIANCE offers comprehensive approaches to beauty and longevity.

Through this white paper, we aim to showcase how NIANCE's approach aligns with the latest trends in the industry and stands poised to meet the evolving needs of our customers. By addressing the 14 Hallmarks of Aging, we provide not only visible improvements in skin health but also support deeper, cellular-level rejuvenation and longevity.

Join us as we delve into the science of aging, explore effective strategies for promoting health and vitality, and discover how NIANCE's groundbreaking products can help you achieve a more youthful and radiant appearance.



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Introduction

Aging is a universal and inevitable process that impacts all living organisms. While the outward signs of aging are most visibly reflected in the skin, the underlying mechanisms are complex and multifaceted, affecting every cell and tissue in the body. Understanding these mechanisms is crucial for developing effective strategies to promote healthy aging and longevity.

This white paper aims to provide a comprehensive exploration of the 14 Hallmarks of Aging, a framework established by leading researchers in the field of gerontology and detailed in the seminal article published by Cell Press. These hallmarks offer a foundational understanding of the biological processes that drive aging and present opportunities for targeted interventions to enhance both skin and overall health.

Purpose of the White Paper

The purpose of this white paper is to:

- Educate readers on the scientific basis of the 14 Hallmarks of Aging.
- Explore general strategies for addressing and deferring these hallmarks through lifestyle, diet, exercise, and supplements.
- Highlight how NIANCE's innovative products, formulated with powerful and scientifically validated ingredients, target each hallmark to promote skin longevity and overall well-being.

Scope and Audience

This white paper is intended for a diverse audience, including:

- **Consumers and Enthusiasts:** To educate on the benefits of NIANCE products and how they can support healthy aging.
- **Healthcare and Wellness Professionals:** To provide insights into the latest research on aging and potential interventions.
- **Researchers and Scientists:** To offer a detailed overview of the hallmarks of aging and the science behind NIANCE's formulations.
- **Industry Stakeholders:** To demonstrate NIANCE's leadership in integrating cutting-edge scientific research into skincare and supplements.

The Hallmarks of Aging

Background and Evolution

Aging is a complex and multifactorial process that affects all living organisms. For decades, scientists have sought to understand the underlying mechanisms driving aging and to identify potential interventions that could mitigate its effects. The concept of the “Hallmarks of Aging” represents a significant breakthrough in this endeavor, offering a comprehensive framework that delineates the primary biological processes contributing to aging.

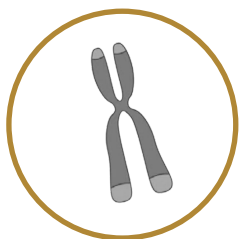
Background

The concept of the Hallmarks of Aging was first introduced in a landmark paper published in 2013 by López-Otín et al. in the prestigious journal *Cell*. This seminal work synthesized decades of research into a cohesive model, identifying nine key mechanisms that collectively contribute to the aging process. These hallmarks provided a unified perspective, enabling researchers to target specific biological pathways in their quest to develop anti-aging interventions.

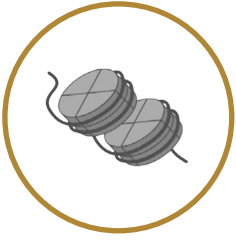
The Original Nine Hallmarks



Genomic Instability: The accumulation of DNA damage over time, leading to impaired cellular function and an increased risk of cancer.



Telomere Attrition: The shortening of telomeres, the protective caps at the ends of chromosomes, which results in cellular senescence and apoptosis.



Epigenetic Alterations: Changes in gene expression without alterations in DNA sequence, affecting cellular function and identity.



Loss of Proteostasis: Impaired protein folding, trafficking, and degradation, leading to the accumulation of damaged proteins.



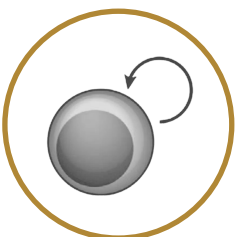
Deregulated Nutrient Sensing: Disruption of nutrient-sensing pathways, impacting metabolism and energy homeostasis.



Mitochondrial Dysfunction: A decline in mitochondrial function, leading to reduced energy production and increased oxidative stress.



Cellular Senescence: The accumulation of senescent cells that cease to divide but secrete harmful inflammatory factors.



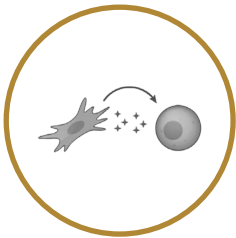
Stem Cell Exhaustion: A decline in stem cell function and regenerative capacity, impairing tissue repair and maintenance.



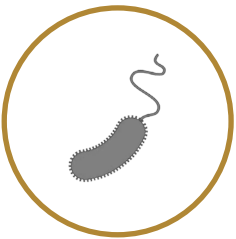
Altered Intercellular Communication: Disruption of signaling between cells, contributing to chronic inflammation and tissue dysfunction.

Evolution of the Hallmarks

Since the publication of the original paper, the framework has evolved to include additional hallmarks, reflecting the latest advances in aging research:



Chronic Inflammation: Persistent low-grade inflammation that exacerbates tissue damage and aging-related diseases.



Dysbiosis: Imbalance in the gut and skin microbiome, which affects overall health, immune function, and aging.



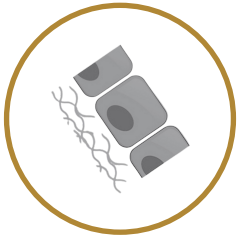
Autophagy Dysfunction: Impaired autophagy, the process by which cells remove damaged components, leading to the accumulation of cellular debris and dysfunction.

These twelve hallmarks collectively provide a comprehensive understanding of the aging process, highlighting the interconnectedness of various biological pathways and their contributions to the decline in physiological function over time.

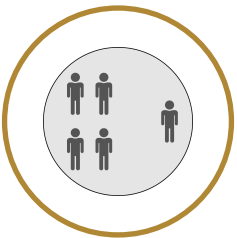
Latest Evolution of the Hallmarks

The science of aging just took a bold leap forward.

A landmark study published in Cell (April 2025) has officially expanded the Hallmarks of Aging from 12 to 14, adding:



Extracellular Matrix (ECM) Changes: The progressive stiffening and disorganization of the skin and organ-supporting network.



Psychosocial Isolation: A silent yet profound contributor to accelerated aging, driven by loneliness and stress-induced biological wear.

These additions underscore what NIANCE has always believed: true longevity is both molecular and emotional.

Key Authors and Contributions

The Hallmarks of Aging framework was primarily authored by a team of distinguished researchers, including Carlos López-Otín, Maria A. Blasco, Linda Partridge, Manuel Serrano, and Guido Kroemer. Their collaborative effort brought together insights from diverse fields of biology, ranging from genetics and epigenetics to metabolism and cell biology.

This integrative approach has not only advanced our understanding of aging but also paved the way for the development of novel therapeutic strategies aimed at targeting these hallmarks. By focusing on the root causes of aging, researchers and clinicians can develop more effective interventions to promote healthy aging and extend the healthspan.

Implications for Research and Industry

The identification of the Hallmarks of Aging has had profound implications for both scientific research and the beauty and supplements industry. It has provided a clear direction for the development of anti-aging therapies, guiding research towards specific biological targets. Moreover, it has enabled companies like NIANCE to formulate products that are scientifically grounded, addressing the fundamental mechanisms of aging rather than just the superficial signs.

In summary, the Hallmarks of Aging framework represents a pivotal advancement in our understanding of the aging process. It provides a robust foundation for developing interventions that can mitigate the effects of aging and improve quality of life. As we continue to unravel the complexities of aging, this framework will undoubtedly remain a cornerstone of aging research and innovation.

Addressing and Deferring the Hallmarks of Aging

Aging is an inevitable process, but scientific advancements have shown that it is possible to delay and mitigate its effects through a combination of lifestyle choices, dietary interventions, exercise, and supplements. By understanding and targeting the Hallmarks of Aging, we can adopt strategies that promote health and longevity. Here, we explore general approaches to addressing these hallmarks, drawing on insights from the Hallmarks of Health as outlined by Cell Press, while also highlighting how NIANCE's products align with these strategies.

Lifestyle Interventions

- 1. Regular Physical Activity:** Exercise is one of the most effective ways to combat aging. It improves cardiovascular health, enhances mitochondrial function, and promotes autophagy. Regular physical activity helps maintain muscle mass, bone density, and overall mobility, which are crucial for healthy aging.
- 2. Adequate Sleep:** Quality sleep is essential for maintaining genomic stability, proper nutrient sensing, and cognitive function. Sleep deprivation can lead to increased inflammation, disrupted metabolic processes, and accelerated aging. Prioritizing sleep hygiene can significantly impact longevity.
- 3. Stress Management:** Chronic stress contributes to inflammation, genomic instability, and cellular senescence. Practices such as mindfulness, meditation, and yoga can reduce stress levels, promoting better health and slowing the aging process.

Dietary Approaches

- 1. Balanced Nutrition:** A diet rich in fruits, vegetables, lean proteins, and healthy fats provides essential nutrients that support cellular function and repair. Antioxidant-rich foods, such as berries and leafy greens, help protect against genomic instability and oxidative stress.
- 2. Caloric Restriction and Intermittent Fasting:** These dietary practices have been shown to extend lifespan in various organisms. They improve metabolic health, enhance autophagy, and reduce inflammation, helping to maintain proper nutrient sensing, which is crucial for healthy aging.
- 3. Nutrient-Rich Supplements:** Certain supplements provide targeted support for the Hallmarks of Aging. General examples include NAD⁺ boosters like nicotinamide riboside, anti-inflammatory agents like omega-3 fatty acids, Vitamin D and C, Zinc, Magnesium, Green Tea Extract, and probiotics, as well as adaptogens like ashwagandha, rhodiola, and ginseng.
 - **NIANCE Ingredients:** NIANCE's formulations include more than 130 powerful ingredients such as most innovative bioactive compounds, vitamins, mineral complex, herbal ingredients, prebiotics, probiotics and postbiotics that support various aging mechanisms such as genomic stability, mitochondrial function, cellular senescence, stem cell exhaustion and inflammation reduction.

Exercise Benefits

- 1. Cardiovascular Health:** Aerobic exercise strengthens the heart and improves circulation, reducing the risk of cardiovascular diseases. It also enhances mitochondrial function and promotes healthy aging.

- 2. Strength Training:** Resistance training helps maintain muscle mass and bone density, which decline with age. It also improves metabolic health and supports proteostasis by enhancing protein synthesis.
- 3. Flexibility and Balance:** Activities such as yoga and tai chi improve flexibility, balance, and coordination, reducing the risk of falls and injuries in older adults. These practices also promote mental well-being and stress reduction.

Role of Supplements

- 1. Antioxidants:** General supplements like vitamin C, vitamin E, and polyphenols protect against oxidative stress and genomic instability by neutralizing free radicals and supporting cellular health.
- 2. NAD+ Boosters:** NAD+ (Nicotinamide Adenine Dinucleotide) is a critical coenzyme found in all living cells, playing a key role in energy metabolism, DNA repair, and cellular function. As we age, NAD+ levels naturally decline, contributing to various age-related health issues. General alternatives like Nicotinamide Riboside (NR), Nicotinamide Mononucleotide (NMN), Vitamin B3, Nicotinic Acid (Niacin), and Nicotinamide (Niacinamide) offer effective ways to boost NAD+ levels, supporting metabolic health, DNA repair, and overall vitality.
- 3. Anti-Inflammatory Agents:** Chronic inflammation accelerates aging and contributes to various diseases. General supplements like Vitamin D and C, Zinc, Magnesium, Green Tea Extract, and probiotics, reduce inflammation and support healthy aging.

4. Probiotics and Prebiotics: Gut health is closely linked to overall health and aging. General supplements like probiotics and prebiotics support a healthy gut microbiome, enhancing nutrient absorption, reducing inflammation, and supporting immune function.

5. Adaptogens: General adaptogens like ashwagandha, rhodiola, and ginseng help the body adapt to stress and maintain homeostasis, supporting energy levels, cognitive function, and overall resilience.

By integrating these lifestyles, dietary, and supplement strategies, we can address and defer the Hallmarks of Aging and promote a longer, healthier life. NIANCE products incorporate these principles, leveraging powerful ingredients that target specific hallmarks and support overall well-being.

NIANCE Ingredients

Overview of NIANCE Ingredients

NIANCE is dedicated to harnessing the power of nature and science to develop skincare and nutritional supplement products that address the fundamental causes of aging. At the heart of our skincare formulations is the Swiss Glacier Complex®, a revolutionary blend of active ingredients from the Alps, meticulously designed to deliver comprehensive anti-aging effects. This complex, along with other potent ingredients, underscores NIANCE's commitment to promoting skin health, rejuvenation, and overall well-being.



Swiss Glacier Complex®

Swiss Glacier Complex® integrates four potent groups of ingredients—Swiss alpine glacier water, a vitamin cocktail, a mineral complex, and various high alpine plant extracts—delivering four comprehensive anti-aging benefits. Hereunder we delve into the scientific foundation of this formulation, the specific benefits of each ingredient, and how it addresses the top hallmarks of aging.

Understanding the Causes of Skin Aging

Skin aging is a complex process influenced by both intrinsic and extrinsic factors. Some key contributors include:

Reactive Oxygen Species (ROS):

ROS are a type of free radical that can cause significant oxidative damage to cells, leading to aging. They are produced naturally and through external factors like UV exposure and pollution. The antioxidants in the Swiss Glacier Complex® help neutralize these harmful molecules, protecting skin cells from damage.

Chronic Inflammation:

Chronic, low-grade inflammation (inflammaging) accelerates aging and is often exacerbated by oxidative stress from ROS. The anti-inflammatory properties of ingredients like Thymus Vulgaris and Gentiana Lutea Root Extract in the Swiss Glacier Complex® help reduce this inflammation, promoting healthier skin.

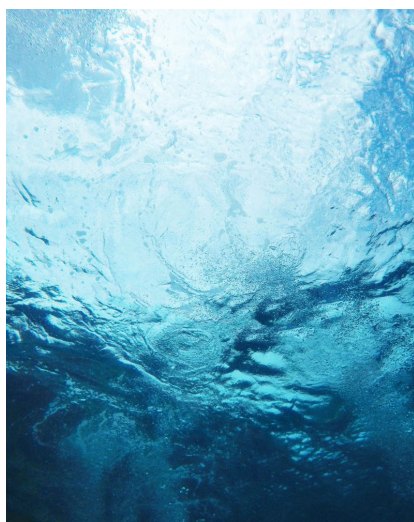
Skin Microbiome Dysbiosis:

The skin microbiome consists of diverse microorganisms that maintain skin health. An imbalance, known as dysbiosis, can lead to accelerated aging and skin conditions. Ingredients in the Swiss Glacier Complex® support a balanced microbiome, enhancing skin's natural defenses and resilience.

Epigenetic Alterations:

Epigenetic changes, such as DNA methylation and histone modification, affect gene expression without altering the DNA sequence. These changes can accelerate aging by disrupting normal cellular functions. The Swiss Glacier Complex® includes ingredients that help modulate these epigenetic factors, maintaining youthful gene expression patterns.

The Four Potent Groups of Ingredients of Swiss Glacier Complex®



Swiss Alpine Glacier Water

(from the Matterhorn area)

Hydration and Detoxification: Rich in essential minerals, this water is encapsulated in liposomes to enhance its penetration into the skin, providing deep and long-lasting hydration. It also helps detoxify the skin, maintaining moisture balance and promoting a radiant complexion.

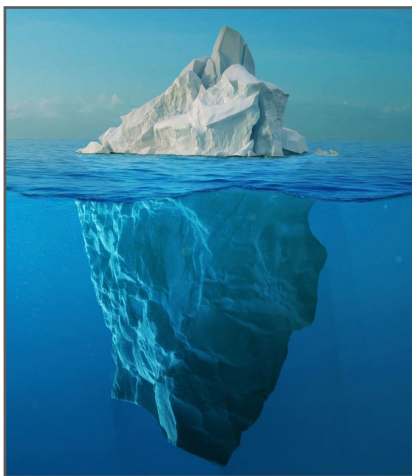
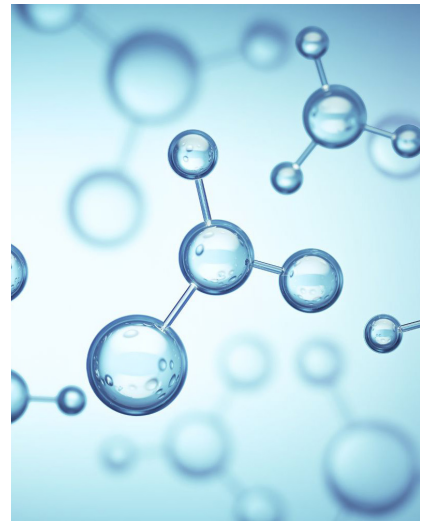
Vitamin Cocktail

(Vitamin A, C, E)

Vitamin A: Promotes cell turnover and collagen production, reducing fine lines and wrinkles.

Vitamin C: Brightens the skin, fights free radicals, and aids in skin repair.

Vitamin E: Moisturizes and protects from oxidative damage.



Mineral Complex

Magnesium: Calms the skin, reducing redness and irritation.

Zinc: Promotes healing and reduces inflammation.

Copper: Supports collagen and elastin production, improving skin firmness and elasticity.

Manganese: Functions as an antioxidant, protecting against oxidative stress.

Potassium: Helps maintain skin moisture balance.

Sodium: Aids in hydration and maintaining skin barrier function.

Calcium: Supports skin repair and regeneration.

High Alpine Plant Extracts

Leontopodium Alpinum (Edelweiss) Extract: Strong antioxidant and anti-inflammatory, protects against UV damage.

Thymus Vulgaris (Thyme) Extract: Anti-inflammatory and antibacterial, soothes and protects the skin.

Gentian Root Extract: Calms the skin and reduces puffiness.

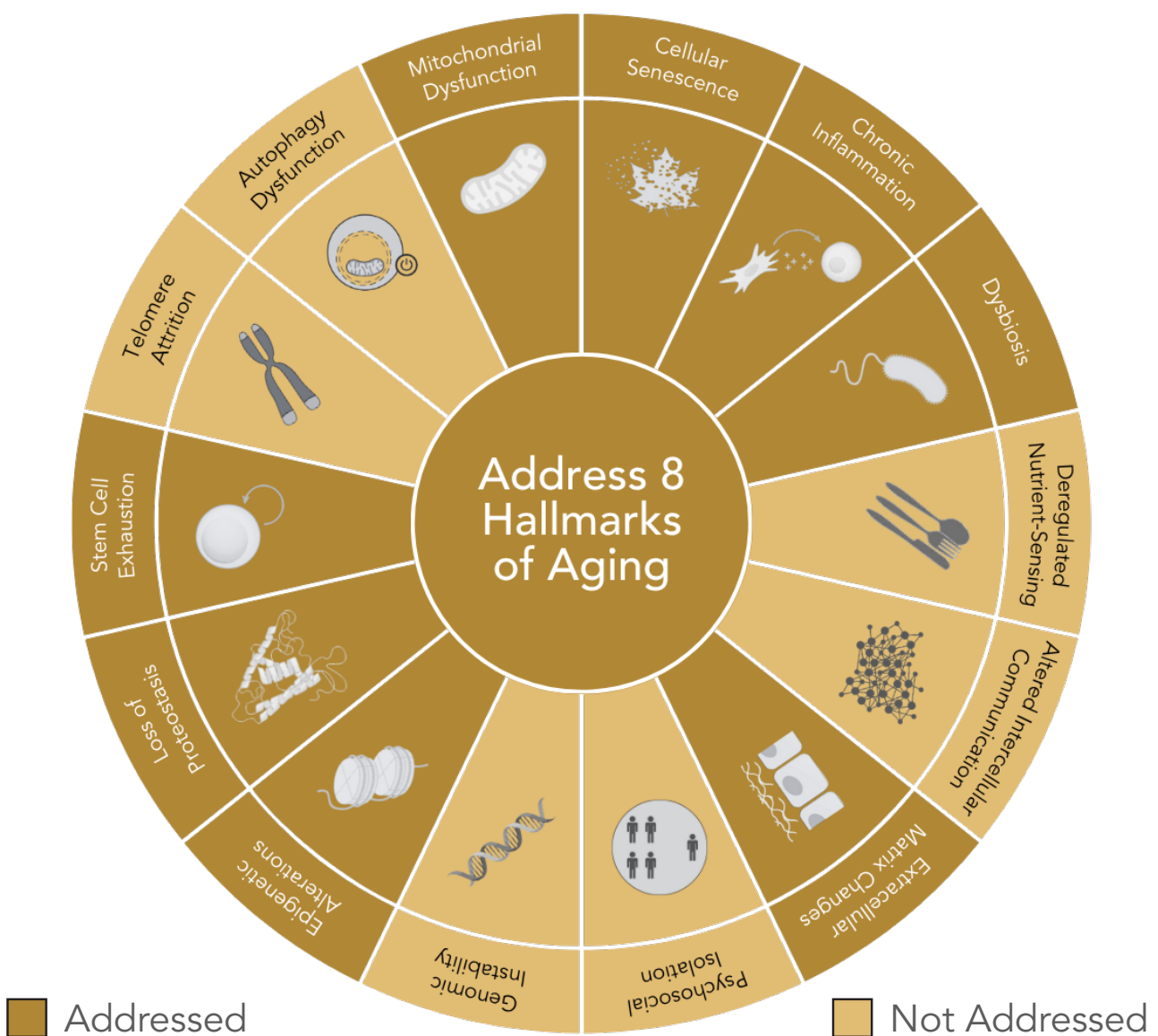


Buddleja Davidii Extract: Protects against UV damage and oxidative stress.

Borago Officinalis Seed Oil: Hydrates and improves skin barrier function.

Addressing the Hallmarks of Aging

Based on the 14 Hallmarks of Aging identified in recent research, the Swiss Glacier Complex® effectively targets several key aspects:



Epigenetic Alterations: Ingredients in the complex help modulate DNA methylation and histone modification, maintaining youthful gene expression patterns.

Loss of Proteostasis: The complex supports protein homeostasis by promoting the health and function of proteins in the skin, preventing the accumulation of damaged proteins.

Stem Cell Exhaustion: The mineral complex and plant extracts support the vitality and functionality of skin stem cells, promoting regeneration.

Mitochondrial Dysfunction: Ingredients like magnesium and zinc support mitochondrial health, reducing dysfunction and enhancing energy production in skin cells.

Cellular Senescence: Vitamins A and C promote cell turnover, reducing the accumulation of senescent cells that contribute to aging.

Chronic Inflammation: Anti-inflammatory ingredients help mitigate chronic inflammation, a key driver of aging.

Dysbiosis: The complex supports a balanced skin microbiome, preventing dysbiosis and its associated aging effects.

Extracellular Matrix (ECM) Changes: The progressive stiffening and disorganization of the skin and organ-supporting network.

Laboratory Test Results on the Swiss Glacier Complex®

The efficacy of the Swiss Glacier Complex® has been validated through rigorous laboratory testing. Here are some key findings:

1. Long-Lasting Hydration and Moisturizing Effect

In tests using immortalized human skin keratinocytes (HaCaT), the Swiss Glacier Complex® significantly increased the expression of Aquaporin 3 (AQP3) and Filaggrin (FLG) proteins. AQP3 facilitates water transport, enhancing skin hydration, while FLG is crucial for maintaining the skin barrier and hydration.

2. Anti-Inflammation and Skin Microbiome Support

The complex reduces chronic inflammation and supports a healthy skin microbiome, crucial for preventing accelerated aging.

The complex promotes the secretion of hyaluronic acid, which strengthens cell growth and repair, protecting the skin barrier. This enhances the skin's resistance to environmental stressors and maintains its elasticity and gloss.

3. Wrinkle Reduction and Prevention

The complex boosts collagen synthesis and cell turnover, reducing fine lines and wrinkles while protecting against free radical damage. The complex showed a notable reduction in ROS content, indicating strong antioxidant activity. This reduction in oxidative stress helps in combating wrinkles and promoting firmer skin by increasing collagen and elastin production.

4. Firming and Lifting

The complex promotes the production of elastin and collagen, restoring skin's firmness and elasticity.

In conclusion, the Swiss Glacier Complex® is a science-backed formulation designed to combat the key factors of skin aging. By addressing hydration, inflammation, free radicals, epigenetic alterations, and supporting the skin microbiome, it offers a comprehensive approach to maintaining youthful, healthy skin. Embrace the power of this innovative complex and experience the fusion of nature and science in NIANCE skincare products.

The NIANCE Incredible Ingredients

NIANCE products are crafted from over 130 active and nutritional ingredients, each selected for their ability to enhance the body's natural rejuvenation processes. The groundbreaking FERNESSE™ biotechnology maximizes the bioavailability of these ingredients, ensuring they deliver their full benefits.



These ingredients, carefully selected from the Swiss Alpine region and other pristine areas globally, form the basis of NIANCE's approach to addressing the hallmarks of aging. Each ingredient is meticulously chosen for its proven efficacy in promoting skin health, rejuvenation, and overall well-being, ensuring that NIANCE products deliver visible and lasting results.

NIANCE Ingredients and Their Effects on Each Hallmark of Aging

1. Genomic Instability

The accumulation of DNA damage over time, leading to impaired cellular function and an increased risk of cancer.



Coenzym Q10

Reduces oxidative stress, protecting DNA



Lycopene

Antioxidant that protects DNA from oxidative stress



Blueberries

Antioxidant properties protect DNA from damage



Black Elderberries
High in antioxidants,
protecting DNA



Ginkgo Leaves
Antioxidant properties
protect DNA



Ginseng Root
Enhances DNA repair
mechanisms



Rose Hips
Rich in antioxidants,
protecting DNA from
oxidative stress



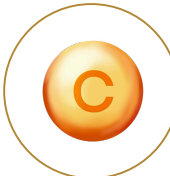
Buddleja Davidii Extract
Antioxidant properties
protect DNA



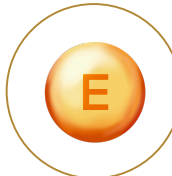
**Edelweiss
(Leontopodium Alpinum)**
Antioxidant properties
protect DNA



Green Tea
Contains polyphenols that
protect DNA



Vitamin C (Ascorbic Acid)
Protects DNA from
oxidative damage



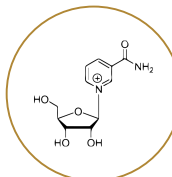
Vitamin E
Antioxidant protection for
cell membranes



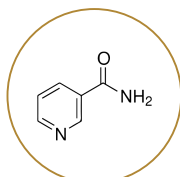
Epigen12™
Shown to reduce cortisol and
improve stress biomarkers



Trans-Resveratrol
Promoting longevity and
protecting against oxidative
damage



Nicotinamide Riboside
NR boosts cellular energy,
improves mitochondrial
function



Niacinamide (Vitamin B3)
Supports DNA repair, enhances skin barrier
function



Rock Rose (Cistus Monspeliensis) Extract
Antioxidant properties protect DNA

2. Telomere Attrition

The shortening of telomeres, the protective caps at the ends of chromosomes, which results in cellular senescence and apoptosis.



Rose Hips

Antioxidants help maintain telomere length



Ginkgo Leaves

Supports telomere integrity



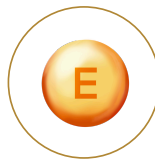
Ginseng Root

May support telomere length maintenance



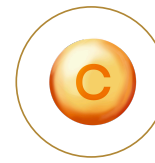
Lycopene

Supports telomere maintenance by reducing oxidative stress



Vitamin E

Protects telomeres from oxidative damage



Vitamin C (Ascorbic Acid)

Supports maintenance of telomeres by reducing oxidative stress

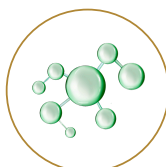


Epigen12™

Shown to reduce cortisol and improve stress biomarkers

3. Epigenetic Alterations

Changes in gene expression without alterations in DNA sequence, affecting cellular function and identity.



Biotin

Influences gene regulation through epigenetic mechanisms



Green Tea

Contains polyphenols that can influence epigenetic mechanisms



Schisandra Chinensis (Five Flavor Berries)

Influences gene expression and epigenetic regulation



**Chinese Wolfberry
(Goji Berries)**
Provides nutrients that support epigenetic health



Vitamin B12
Supports DNA methylation and epigenetic regulation



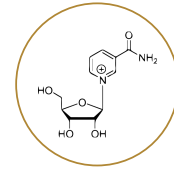
Vitamin B2 (Riboflavin)
Involved in DNA methylation processes



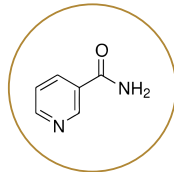
Epigen12™
Shown to reduce cortisol and improve stress biomarkers



Trans-Resveratrol
Promoting longevity and protecting against oxidative damage



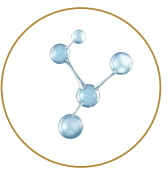
Nicotinamide Riboside
NR boosts cellular energy, improves mitochondrial function



Niacinamide (Vitamin B3)
Supports DNA repair, enhances skin barrier function

4. Loss of Proteostasis

Impaired protein folding, trafficking, and degradation, leading to the accumulation of damaged proteins.



Hydrolyzed Marine Collagen
Provides essential amino acids for protein synthesis and repair



Swiss Milk Colostrum
Provides proteins that support homeostasis



Rose Hips
Supports collagen production



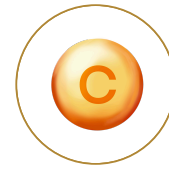
Zinc

Involved in protein synthesis and repair



Manganese

Cofactor for enzymes involved in protein metabolism



Vitamin C (Ascorbic Acid) Supports collagen synthesis, aiding in protein homeostasis



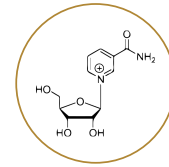
Epigen12™

Shown to reduce cortisol and improve stress biomarkers

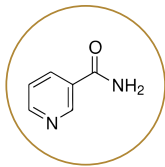


Trans-Resveratrol

Promoting longevity and protecting against oxidative damage

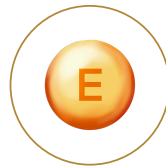


Nicotinamide Riboside
NR boosts cellular energy, improves mitochondrial function



Niacinamide (Vitamin B3)

Supports DNA repair, enhances skin barrier function



Vitamin E

Prevents protein oxidation and aggregation



Vitamin B2 (Riboflavin)

Essential for protein metabolism

5. Deregulated Nutrient Sensing

Disruption of nutrient-sensing pathways, impacting metabolism and energy homeostasis.



Iron

Essential for oxygen transport and energy production



Zinc

Involved in various metabolic processes



Ginseng Root

Modulates nutrient sensing pathways



Yerba Mate

Enhances metabolic health



Guarana

Enhances metabolic function

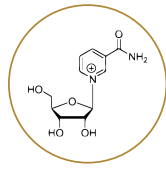


Barley Grass

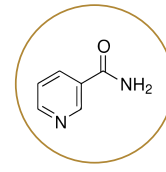
Provides essential nutrients for metabolic health



Trans-Resveratrol
Promoting longevity and protecting against oxidative damage



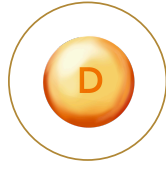
Nicotinamide Riboside
NR boosts cellular energy, improves mitochondrial function



Niacinamide (Vitamin B3)
Supports DNA repair, enhances skin barrier function



Vitamin PP
Essential for NAD+ metabolism, influencing cellular energy balance



Vitamin D
Regulates calcium homeostasis and metabolic pathways



Vitamin A
Involved in metabolic regulation and nutrient sensing



Vitamin B2 (Riboflavin)
Supports metabolic pathways

6. Mitochondrial Dysfunction

A decline in mitochondrial function, leading to reduced energy production and increased oxidative stress.



Coenzym Q10
Essential for mitochondrial energy production and reducing oxidative damage



Hops
Reduces inflammation and supports mitochondrial health



Schisandra Chinensis (Five Flavor Berries)
Supports mitochondrial health



Ginseng Root
Supports mitochondrial function



Rhodiola Rosea (Rose root)
Enhances mitochondrial function



Lycopene
Protects mitochondria from oxidative stress



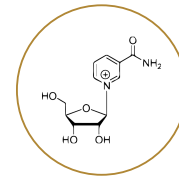
Epigen12™

Shown to reduce cortisol and improve stress biomarkers



Trans-Resveratrol

Promoting longevity and protecting against oxidative damage



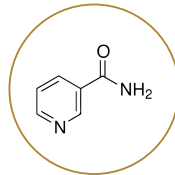
Nicotinamide Riboside

NR boosts cellular energy, improves mitochondrial function



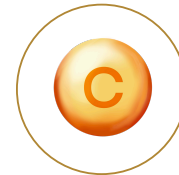
Vitamin B2 (Riboflavin)

Supports mitochondrial function and energy production



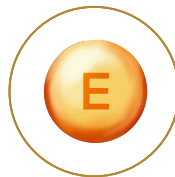
Niacinamide (Vitamin B3)

Supports DNA repair, enhances skin barrier function



Vitamin C (Ascorbic Acid)

Supports mitochondrial health by reducing oxidative stress



Vitamin E

Protects mitochondrial membranes

7. Cellular Senescence

The accumulation of senescent cells that cease to divide but secrete harmful inflammatory factors.



Punica Granatum (Pomegranate seeds)

Antioxidants reduce cellular senescence



Vaccinium Myrtillus (Blueberries)

Reduces oxidative stress and cellular aging



Schinsandra Chinensis (Five Flavor Berries)

Reduces cellular stress, delaying senescence



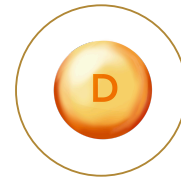
Rhodiola Rosea (Rose root)

Delays cellular aging processes



Coenzym Q10

Reduces oxidative stress, delaying cellular senescence



Vitamin D

Regulates cell cycle and promotes cellular longevity



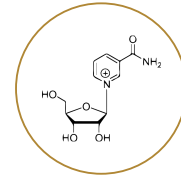
Epigen12™

Shown to reduce cortisol and improve stress biomarkers



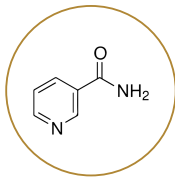
Trans-Resveratrol

Promoting longevity and protecting against oxidative damage



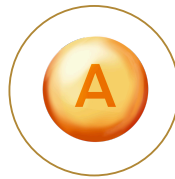
Nicotinamide Riboside

NR boosts cellular energy, improves mitochondrial function



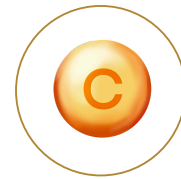
Niacinamide (Vitamin B3)

Supports DNA repair, enhances skin barrier function



Vitamin A

Promotes cell turnover and reduces accumulation of senescent cells

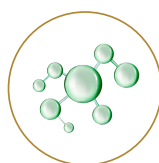


Vitamin C (Ascorbic Acid)

Protects against oxidative stress, which can induce cellular senescence

8. Stem Cell Exhaustion

A decline in stem cell function and regenerative capacity, impairing tissue repair and maintenance.



Biotin

Essential for cell proliferation and stem cell health



Zinc

Supports stem cell health



Barley Grass

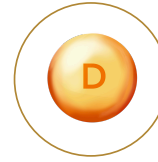
Provides nutrients supporting stem cell health



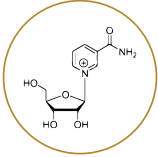
Gentiana Lutea Root
Supports stem cell vitality



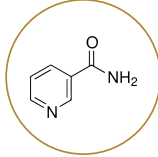
Ginseng Root
Enhances stem cell function



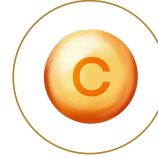
Vitamin D
Promotes stem cell health and function



Nicotinamide Riboside
NR boosts cellular energy, improves mitochondrial function



Niacinamide (Vitamin B3)
Supports DNA repair, enhances skin barrier function



Vitamin C (Ascorbic Acid)
Supports stem cell function and maintenance



Vitamin A
Influences stem cell differentiation and regeneration



Vitamin A
Influences stem cell differentiation and regeneration

9. Altered Intercellular Communication

Disruption of signaling between cells, contributing to chronic inflammation and tissue dysfunction.



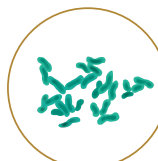
Zinc
Essential for cell signaling and communication



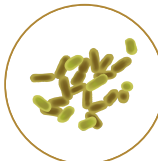
Ginkgo Leaves
Enhances cellular communication



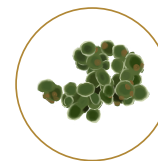
Yerba Mate
Supports cellular communication



Lactobacillus Rhamnosus
Supports gut health, influencing cellular communication



Lactobacillus Plantarum
Enhances intercellular communication through gut health



Saccharomyces Cerevisiae
Supports overall cellular communication via gut health



Chinese Ginger Root
Modulates cell signaling pathways



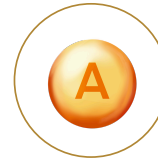
Epigen12™
Shown to reduce cortisol and improve stress biomarkers



Trans-Resveratrol
Promoting longevity and protecting against oxidative damage



Vitamin D
Modulates immune responses and intercellular communication



Vitamin A
Supports healthy cell signaling pathways

10. Autophagy Dysfunction

Impaired autophagy, the process by which cells remove damaged components, leading to the accumulation of cellular debris and dysfunction.



Gentiana Lutea Root
Supports cellular autophagy



Rose Hips
Promotes autophagy



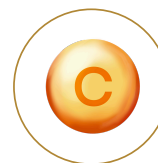
Tamarindus Indica Seed Gum
Supports cellular autophagy



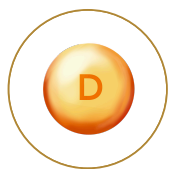
Schisandra Chinensis (Five Flavor Berries)
Enhances autophagic processes



Coenzyme Q10
Supports autophagy processes, aiding in removal of damaged cellular components



Vitamin C (Ascorbic Acid)
Enhances autophagy through antioxidant properties



Vitamin D

Regulates autophagy and cellular clearance mechanisms



Vitamin A

Supports autophagic processes

11. Chronic Inflammation

Persistent low-grade inflammation that exacerbates tissue damage and aging-related diseases.



Rose Hips

Anti-inflammatory properties



Hops

Reduces inflammation



Rhodiola Rosea (Rose root)

Anti-inflammatory properties



Juniper Berries

Anti-inflammatory properties



Ginseng Root

Reduces inflammation.



Chinese Ginger Root

Potent anti-inflammatory



Gentiana Lutea Root

Reduces inflammation



Urtica Dioica (Nettle leaves)

Anti-inflammatory properties



Peppermint

Reduces inflammation



Zinc

Modulates immune responses and reduces inflammation



Juglans Regia (Walnut leaves)

Anti-inflammatory properties



Schinsandra Chinensis (Five Flavor Berries)

Reduces inflammation



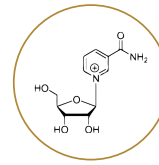
Epigen12™

Shown to reduce cortisol and improve stress biomarkers



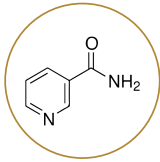
Trans-Resveratrol

Promoting longevity and protecting against oxidative damage



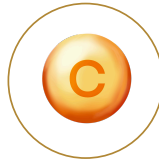
Nicotinamide Riboside

NR boosts cellular energy, improves mitochondrial function



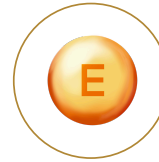
Niacinamide (Vitamin B3)

Supports DNA repair, enhances skin barrier function



Vitamin C (Ascorbic Acid)

Reduces oxidative stress and inflammation

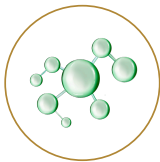


Vitamin E

Anti-inflammatory properties

12. Dysbiosis

Imbalance in the gut and skin microbiome, which affects overall health, immune function, and aging.



Biotin

Supports gut health and microbiota balance



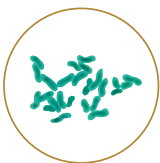
Barley Grass

Rich in dietary fiber, supporting gut health



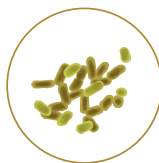
Angelica Root

Traditionally used to support digestive health



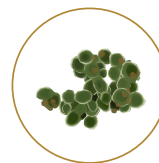
Lactobacillus Rhamnosus

Supports gut health, promoting a balanced microbiome



Lactobacillus Plantarum

Balances gut microbiota



Saccharomyces Cerevisiae

Supports gut health and microbiome balance



Rose Root

Supports gut health



Gentiana Lutea Root

Supports digestive health



Lemon Seed Oil

Supports gut health



Poria Cocos (Pine Sponge)
Enhances gut health



Schinsandra Chinensis (Five Flavor Berries)
Supports gut health



Porphyridium Cruentum Extract
Supports gut health



Cichorium Intybus (Chicory)
Contains inulin, a prebiotic fiber that supports beneficial gut bacteria



Chinese Wolfberry (Goji Berries)
Supports gut health through its antioxidant properties



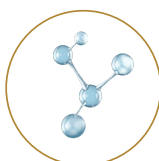
Peppermint
Supports gut health and reduces gastrointestinal discomfort



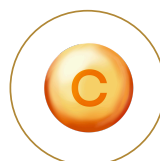
Vitamin D
Modulates gut microbiota and supports gut barrier function

13. Extracellular Matrix (ECM) Changes

ECM changes refer to progressive stiffening and disorganization of the skin and organ-supporting matrix, leading to sagging, wrinkles, and compromised tissue integrity.



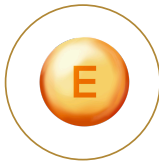
Hydrolyzed Marine Collagen
Provides amino acids for collagen synthesis, promoting ECM structure and elasticity



Vitamin C (Ascorbic Acid)
Essential for collagen biosynthesis and ECM remodeling



Vitamin A
Stimulates collagen production and ECM renewal



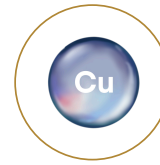
Vitamin E

Antioxidant that protects ECM components from oxidative degradation



Zinc

Essential for collagen biosynthesis and ECM remodeling



Copper

Essential for collagen biosynthesis and ECM remodeling



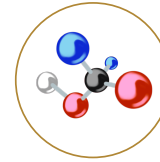
Cistus Monspeliensis (Rock Rose) Extract

Stimulates ECM1 protein expression; protects skin integrity from photoaging



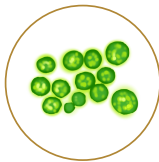
Gentiana Lutea Root

Anti-inflammatory, supports ECM environment



SYN-AKE®

Temporarily reduces muscular micro-contractions, minimizing ECM mechanical stress



Micro Algae Extract

Enhances skin firmness and promotes ECM remodeling



Manganese

Cofactor for enzymes involved in ECM synthesis and antioxidant protection



Buddleja Davidii Extract

Essential for collagen biosynthesis and ECM remodeling

14. Psychosocial Isolation

Psychosocial isolation is a newly recognized hallmark involving stress-induced biological aging, driven by loneliness, elevated cortisol, and neuroinflammatory responses.



Rose Root

Adaptogen that reduces fatigue and supports mood balance



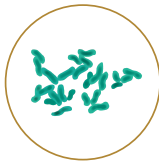
Ginseng Root

Supports adrenal function and stress resilience

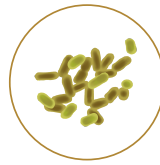


Five Flavor Berries (Schisandra Chinensis Fructus) Extract

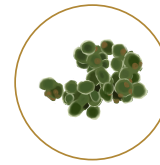
Adaptogen that modulates stress response and improves mental clarity



Lactobacillus Rhamnosus
Gut-brain axis modulation,
reduces anxiety-like
behavior



Lactobacillus Plantarum
Gut-brain axis modulation,
reduces anxiety-like
behavior



Saccharomyces Cerevisiae
Enhances gut balance,
potentially supporting mood
and mental health



Vitamin B12
Supports nervous system and
mood regulation



Vitamin PP (Niacin)
Supports nervous system
and mood regulation



Magnesium
Modulate the HPA axis,
reduce anxiety and cortisol



Wild Prickly Juju Seed
Utilized to improve sleep and
decrease anxiety



Epigen12™
Shown to reduce cortisol
and improve stress
biomarkers



**Tephrosia Purpurea (Wild
Indigo) Seed Extract**
Fights the signs of stress,
pollution, fatigue and
tiredness



Zinc
Modulate the HPA axis,
reduce anxiety and cortisol

By integrating these powerful and scientifically validated ingredients, NIANCE products address the 14 Hallmarks of Aging at a fundamental level. This holistic approach ensures that our formulations not only improve the visible signs of aging but also enhance overall cellular health and longevity.

Scientific Validation and Lab Test Reports

At NIANCE, we are committed to scientific excellence and transparency. Our products are formulated using advanced biotechnology and high-quality ingredients that have been extensively tested for their efficacy and safety. We publish the lab test reports that support the effectiveness of every NIANCE product in addressing the 14 Hallmarks of Aging on the official website of NIANCE.

Safety and Quality Assurance

NIANCE adheres to the highest standards of safety and quality assurance throughout the entire product development process:

- 1. Rigorous Testing:** All ingredients selected have undergone extensive in vitro and in vivo testing to confirm their safety and efficacy. These tests include assessments for potential irritants, allergens, and toxicological risks, ensuring that each ingredient is safe for use on all skin types, including sensitive skin.
- 2. Sourcing and Purity:** We source our ingredients from trusted suppliers who meet stringent quality criteria. Ingredients like Swiss Alpine Glacier Water and Edelweiss Extract are harvested in their purest forms, ensuring they retain their natural potency and effectiveness.
- 3. Controlled Production Environment:** Our formulations are developed in state-of-the-art facilities that adhere to Good Manufacturing Practices (GMP). This ensures that all products are manufactured under strict hygiene conditions, reducing the risk of contamination and maintaining the integrity of each ingredient.

- 4. Stability and Shelf-Life Testing:** We conduct thorough stability tests to ensure that our products maintain their efficacy and safety over time. These tests simulate various environmental conditions to evaluate how ingredients and final products perform under different circumstances.
- 5. Transparency and Documentation:** NIANCE is committed to full transparency regarding our ingredients and their safety profiles. All our products come with detailed documentation of the ingredients used, the scientific validation of their efficacy, and their safety certifications.
- 6. Dermatological Testing:** All NIANCE skincare products undergo independent dermatological testing to ensure they are skin-friendly and suitable for daily use. This extra layer of clinical validation guarantees that our formulations are non-irritating and safe for even the most sensitive skin.
- 7. 100% Swiss Made:** All NIANCE skincare and supplement products are fully developed and manufactured in Switzerland, representing the pinnacle of Swiss safety, precision, and quality standards. This ensures the highest level of craftsmanship and adherence to stringent regulatory requirements.

Through these rigorous processes, we ensure that NIANCE products are not only effective in addressing the Hallmarks of Aging but also safe for daily use, providing our customers with peace of mind alongside visible results.

CASE STUDY on the NIANCE Skincare Products and their role in addressing the specific Hallmarks of Aging

NIANCE Premium Glacier Facial Cream: The Pinnacle of Skin Rejuvenation

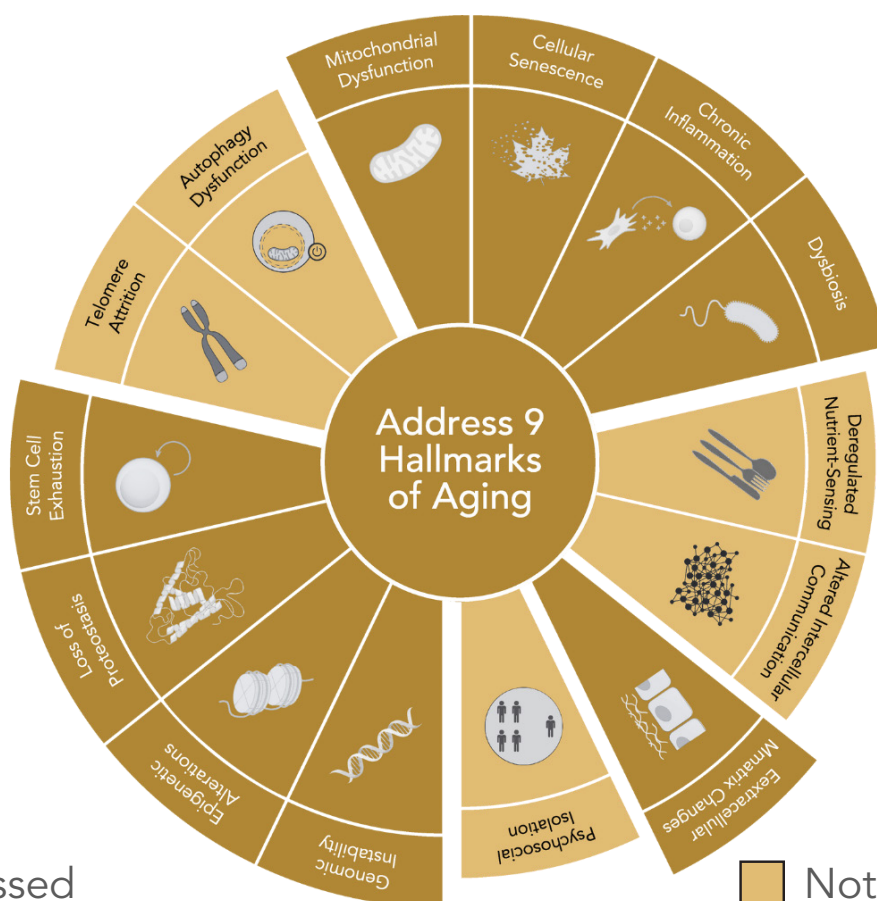
The ultimate anti-aging cream with “botox” effect



NIANCE Premium Glacier Facial Cream is designed to address the following specific hallmarks of aging, providing a holistic approach to skin care:

- 1. Genomic Instability:** Provides antioxidant protection to prevent DNA damage.
- 2. Epigenetic Alterations:** Modulates gene expression to maintain youthful skin behavior.

3. **Loss of Proteostasis:** Supports protein maintenance and stability through hydration, collagen support, and barrier protection.
4. **Stem Cell Exhaustion:** Provides nutrients and growth factors that support skin stem cell function and regeneration.
5. **Mitochondrial Dysfunction:** Protects mitochondria from oxidative stress, supporting cellular energy production.
6. **Cellular Senescence:** Promotes the removal of aged cells and encourages the regeneration of new, healthy cells.
7. **Chronic Inflammation:** Reduces inflammation with anti-inflammatory and antioxidant ingredients.
8. **Dysbiosis:** Maintains a balanced skin microbiome to prevent accelerated aging.
9. **Extracellular Matrix (ECM) Changes:** The progressive stiffening and disorganization of the skin and organ-supporting network.



By addressing these hallmarks, NIANCE Premium Glacier Facial Cream offers a comprehensive solution to aging skin, ensuring that it remains hydrated, firm, and youthful. This cream not only improves the visible signs of aging but also supports deeper cellular health, making it an essential component of any advanced skincare regimen.

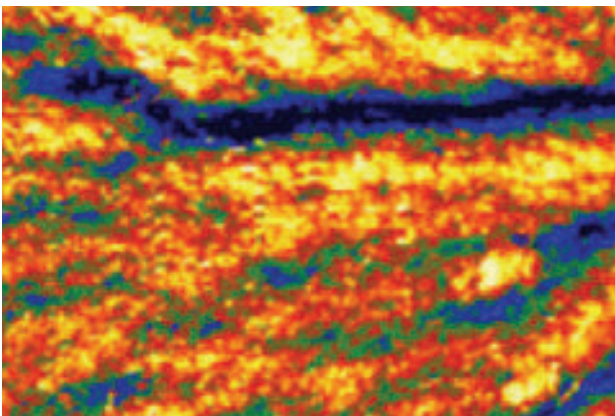
Lab Test Results: Efficacy of NIANCE Premium Glacier Facial Cream

Objective:

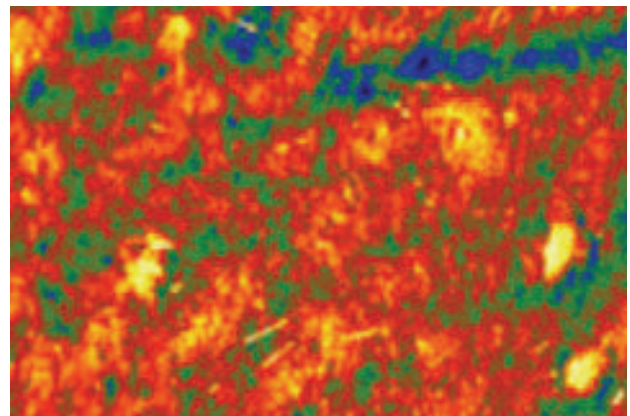
The primary objective of the study was to evaluate the efficacy of NIANCE Premium Glacier Facial Cream in terms of its moisturizing, anti-wrinkle, firming, repairing, and soothing effects, particularly on sensitive skin.

Methodology:

- **Participants:** The study involved 31 healthy female subjects with sensitive skin, aged between 34 to 60 years, with an average age of 52 years.
- **Dosage:** The cream was applied twice daily (morning and evening) over a period of 28 days.
- **Parameters Measured:** The study measured skin hydration, trans-epidermal water loss (TEWL), skin elasticity, skin firmness, wrinkle depth, and skin redness.



Before



After 28 Days

Efficacy result - SGS Lab Test Result:

+19.37%

Significant increase
in **Skin Hydration**

-16.15%

Significant decrease
in **TEWL**

-7.46%

Significant reduction
in **Wrinkle Depth**

-10.54%

Significant reduction
in **Wrinkle Length**

-15.53%

Significant reduction
in **Wrinkle Area**

-17.20%

reduction in **Wrinkle
Volume**

+11.01%

Significant
improvement in **Skin
Elasticity (R2)**

+20.71%

Significant
improvement in **Skin
Elasticity (R5)**

+19.24%

Significant
improvement in **Skin
Elasticity (R7)**

+9.83%

Significant
improvement in **Skin
Firmness**

-12.52%

Significant reduction
in **Skin Redness
(a* value)**

-12.35%

Significant reduction
in **Redness Area**

* After 28 Days



Before



After 28 Days

1. Skin Hydration:

- Measurement Tool: Corneometer® CM825.
- Results: The study observed a significant increase in skin hydration by 11.80% after 14 days and 19.37% after 28 days ($p < 0.05$), demonstrating the cream's effectiveness in maintaining moisture levels in the skin.

2. Trans-Epidermal Water Loss (TEWL):

- Measurement Tool: Tewameter® TM Hex.
- Results: A significant decrease in TEWL by 9.40% after 14 days and 16.15% after 28 days was recorded, indicating improved skin barrier function and reduced moisture loss ($p < 0.05$).

3. Skin Elasticity:

- Measurement Tool: Cutometer® MPA580.
- Results: Significant improvements in skin elasticity were noted, with increases of 7.27% (R2), 12.75% (R5), and 14.88% (R7) after 14 days, and 11.01%, 20.71%, and 19.24% respectively after 28 days ($p < 0.05$).

4. Skin Firmness:

- Measurement Tool: Cutometer® MPA580.
- Results: Skin firmness (F4) improved by 5.78% after 14 days and 9.83% after 28 days ($p < 0.05$), confirming the cream's ability to enhance skin structure and resilience.

5. Wrinkle Reduction:

- Measurement Tool: Primos CR.
- Results: The cream significantly reduced wrinkle depth by 4.69% after 14 days and 7.46% after 28 days. Wrinkle length decreased by 6.97% after 14 days and 10.54% after 28 days, while wrinkle area reduced by 9.20% after 14 days and 15.53% after 28 days. Wrinkle volume decreased by 8.74% after 14 days and 17.20% after 28 days (all $p < 0.05$).

6. Reduction in Skin Redness:

- Measurement Tool: VISIA®-CR5.0 & IPP.
- Results: The study observed a significant reduction in skin redness (a* value) by 8.82% after 14 days and 12.52% after 28 days, with redness area percentage decreasing by 11.93% after 14 days and 12.35% after 28 days ($p < 0.05$).

7. Subjective Self-Assessment:

- Participants reported significant improvements in skin dryness, firmness, elasticity, wrinkle condition, skin gloss, redness, overall skin state, and tolerance to external stimuli. High satisfaction rates were recorded, with 100% of participants satisfied with the product's texture, absorption, moisturizing effect, and overall efficacy after 28 days.

In conclusion, NIANCE Premium Glacier Facial Cream demonstrated significant efficacy in improving skin hydration, reducing trans-epidermal water loss, enhancing skin elasticity and firmness, reducing wrinkles, and soothing skin redness. The product is particularly suitable for sensitive skin, showing no signs of irritation and being well-tolerated across the participant group.

CASE STUDY on the NIANCE Longevity Supplements and Their Role in Addressing Specific Hallmarks of Aging

NIANCE has developed a range of biotic nutritional supplements specifically designed to target key hallmarks of aging. These supplements provide comprehensive support by addressing various biological processes that contribute to aging, thereby promoting overall health, vitality, and longevity.

Epigen12™ Cell Renewal

Turning back the biological age clock by up to 12 years



The NIANCE Epigen12™ Cell Renewal primarily addresses the following hallmarks of aging:

- **Genomic Instability:** The accumulation of DNA damage over time, leading to impaired cellular function and an increased risk of cancer.
- **Epigenetic Alterations:** Changes in gene expression without alterations in DNA sequence, affecting cellular function and identity.
- **Stem Cell Exhaustion:** A decline in stem cell function and regenerative capacity, impairing tissue repair and maintenance.



■ Addressed

■ Not Addressed

- **Telomere Attrition:** The shortening of telomeres, the protective caps at the ends of chromosomes, which results in cellular senescence and apoptosis.
- **Mitochondrial Dysfunction:** A decline in mitochondrial function, leading to reduced energy production and increased oxidative stress.
- **Cellular Senescence:** The accumulation of senescent cells that cease to divide but secrete harmful inflammatory factors.
- **Chronic Inflammation:** Persistent low-grade inflammation that exacerbates tissue damage and aging-related diseases.
- **Deregulated Nutrient Sensing:** Disruption of nutrient-sensing pathways, impacting metabolism and energy homeostasis.
- **Altered Intercellular Communication:** Disruption of signaling between cells, contributing to chronic inflammation and tissue dysfunction.
- **Psychosocial Isolation:** A silent yet profound contributor to accelerated aging, driven by loneliness and stress-induced biological wear.

Clinical Trials For Epigen12™ Cell Renewal

Conducted in laboratory settings using specialized assays and validated cellular models:



DNA Methylation Age (DNAmAge): Testing revealed a significant reduction in biological age up to 12 years.



Telomere Shortening Rate: EPIGEN12™ preserved telomere length, a key marker of cellular health, with statistically significant results ($p < 0.01$).



Mitochondrial ATP Production: Increased energy production in human heart cells, indicating enhanced cellular vitality ($p < 0.001$).



Vascular Function: Improved nitric oxide (NO) release in human endothelial cells, supporting healthy blood flow and nutrient sensing.

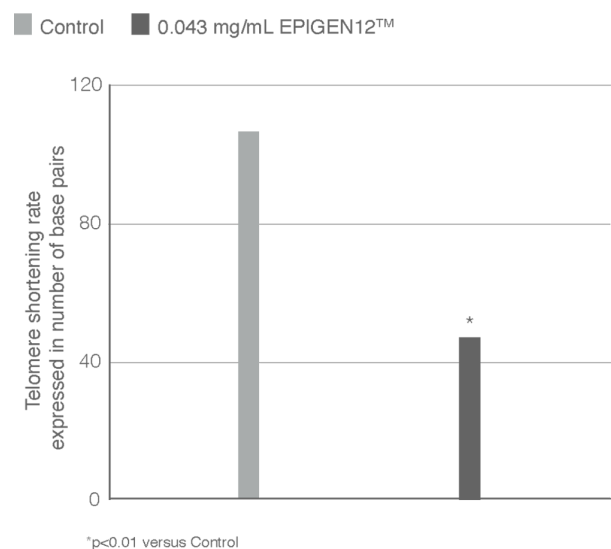


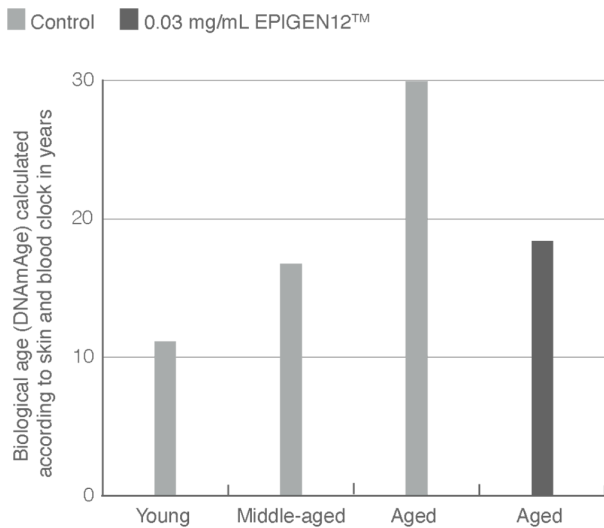
Nematode Healthspan Study: Demonstrated improved mobility and lifespan in medium-aged nematodes, correlating with enhanced healthspan.

EPIGEN12™ Efficacy Results

Telomere Shortening Rate

The control group showed a significantly higher telomere shortening rate compared to the group treated with 0.043 mg/mL of EPIGEN12™. This suggests that EPIGEN12™ may reduce the rate of telomere shortening, a marker of cellular aging.



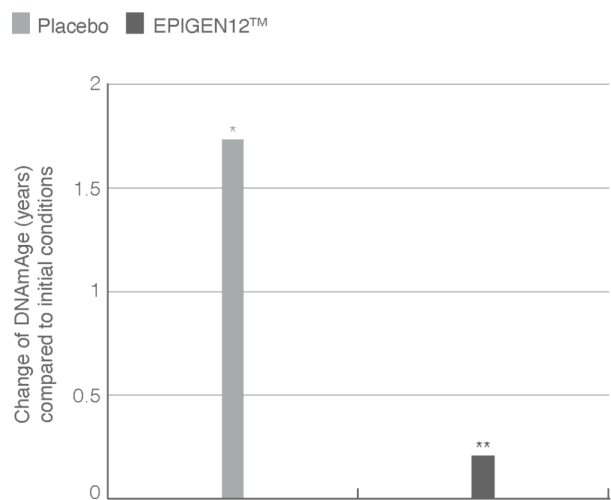


Biological Age (DNA Methylation Age or DNAmAge)

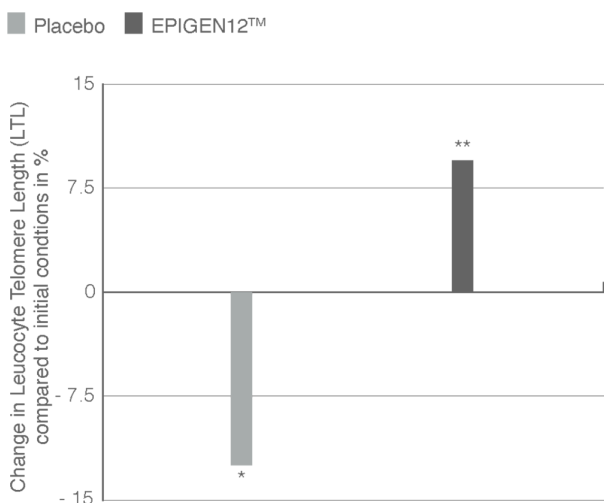
The aged group treated with 0.03 mg/mL EPIGEN12™ displayed a reduction in biological age compared to the control group, indicating a potential age-reversing effect of EPIGEN12™.

Change in DNAmAge (Years)

Participants receiving EPIGEN12™ showed a lesser increase in DNAmAge compared to the placebo group, highlighting its potential in slowing biological aging.



*p<0.0001 versus initial conditions
**p<0.05 versus placebo



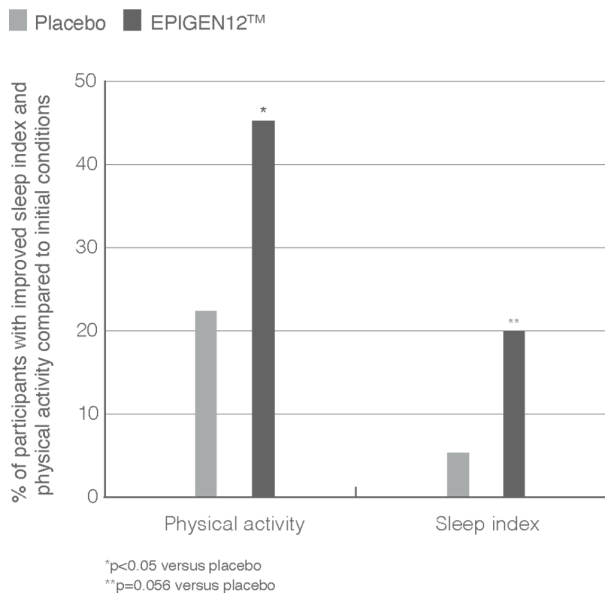
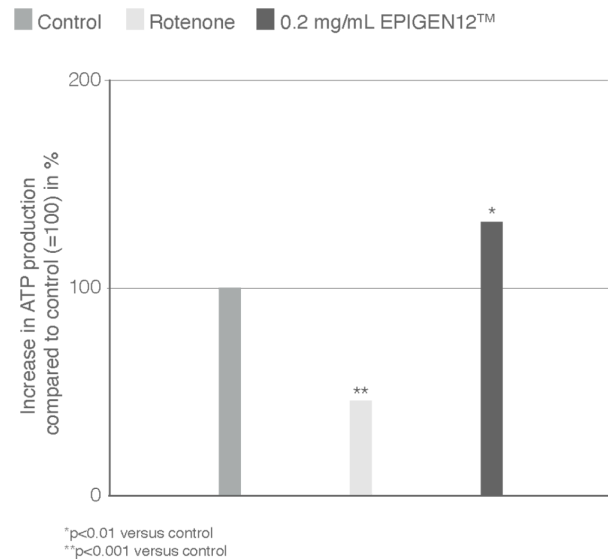
*p<0.001 versus initial conditions
**p<0.01 versus placebo

Change in Leucocyte Telomere Length (LTL)

The placebo group experienced a reduction in LTL, while the EPIGEN12™ group showed an increase in telomere length.

ATP Production

EPIGEN12™ at 0.2 mg/mL significantly boosted ATP production compared to the control and Rotenone-treated groups.

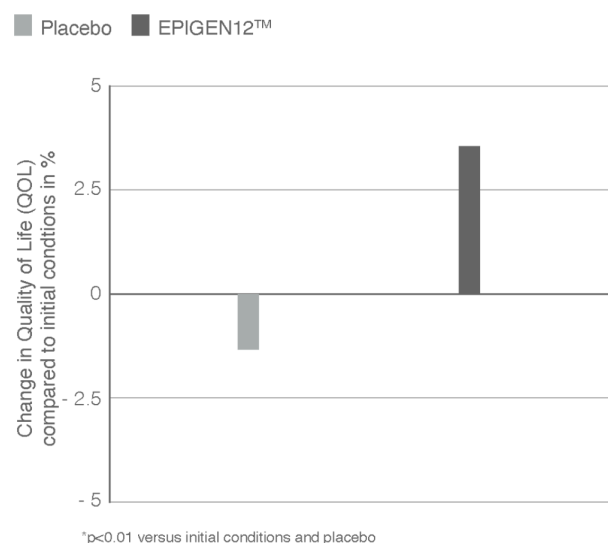


Physical Activity and Sleep Index

A higher percentage of participants in the EPIGEN12™ group showed improvements in physical activity and sleep index compared to the placebo group.

Quality of Life (QOL)

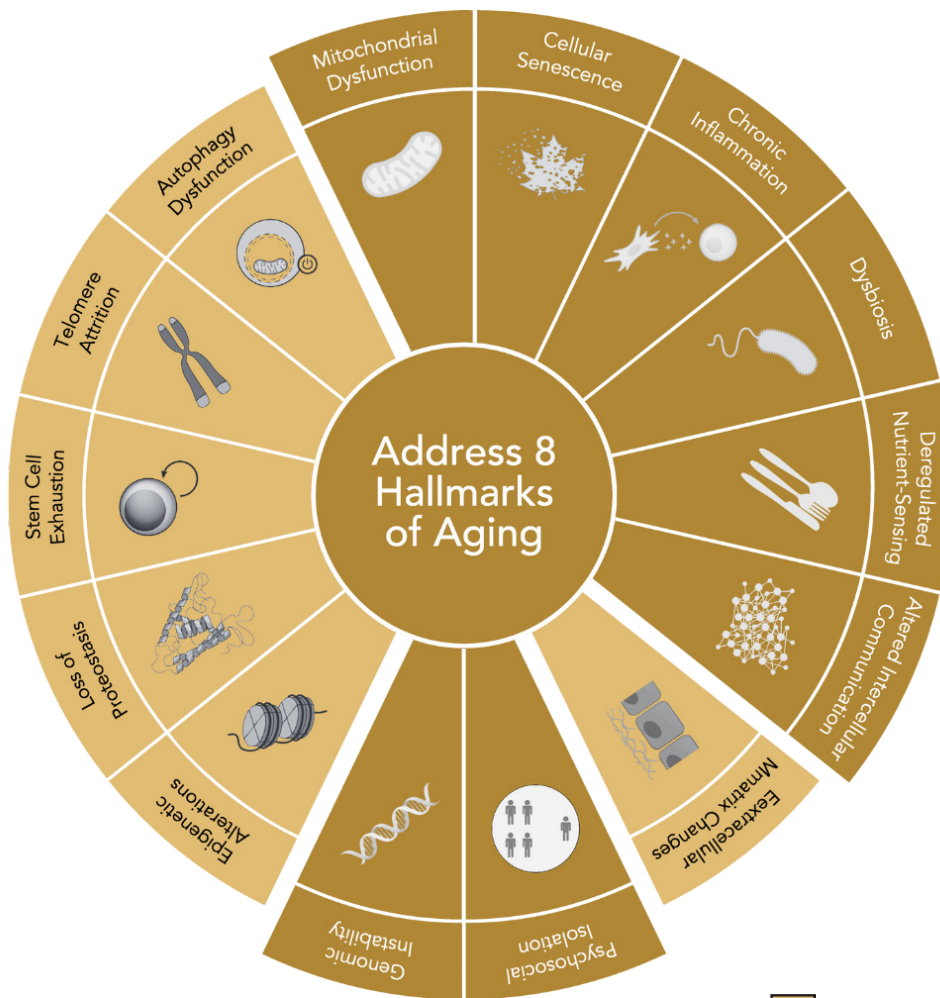
The EPIGEN12™ group experienced a significant improvement in QOL compared to the placebo group, which showed a decline.



GENR8® BIOTIC Nutritional Supplements VITALITY

Effortless Energy





■ Addressed

■ Not Addressed

The NIANCE GENR8 Biotic Nutritional Supplements VITALITY primarily addresses the following hallmarks of aging:

- **Genomic Instability:** Antioxidants protect cells from oxidative damage.
- **Mitochondrial Dysfunction:** Provides nutrients that support mitochondrial health and energy metabolism.
- **Cellular Senescence:** Improves blood flow and nutrient delivery to tissues, potentially reducing the impact of aging cells.
- **Chronic Inflammation:** Anti-inflammatory properties help mitigate chronic inflammation associated with aging.

- **Dysbiosis:** Maintains a healthy gut microbiome, crucial for overall health and aging processes.
- **Deregulated Nutrient Sensing:** May influence metabolic pathways involved in energy balance.
- **Altered Intercellular Communication:** Helps modulate stress response, beneficial for cellular signaling.
- **Psychosocial Isolation:** A silent yet profound contributor to accelerated aging, driven by loneliness and stress-induced biological wear.

Lab Results for NIANCE GENR8® VITALITY



Reduction in Physical Fatigue

Participants in the test group experienced a significant reduction in fatigue, as measured by the Fatigue Severity Scale (FSS).



Improved Exercise Endurance

The test group increased the distance they could walk or run within a fixed time, showing enhanced physical endurance.



Decreased Lactic Acid, Urea Nitrogen, and Creatine Kinase Levels

Blood biochemistry markers for physical stress (lactic acid, urea nitrogen, creatine kinase) were significantly reduced in the test group.



Boosted Immune Function

Immunoglobulin levels (IgA) increased in the test group, indicating enhanced immune system support.



Enhanced Antioxidant Activity

Antioxidant enzyme Superoxide Dismutase (SOD) levels increased, reflecting improved antioxidant defenses.



Regulated Gut Microbiota

The probiotic ratio in the test group increased, showing improved gut microbiota regulation.



Overall Health Improvements

Participants reported fewer cold/flu symptoms, better skin condition, higher energy levels, and improved digestive health.

Premium Collagen-Hyaluron Beauty Booster

The Game Changer



The NIANCE Premium Collagen-Hyaluron Beauty Booster primarily addresses the following hallmarks of aging:

- **Genomic Instability:** Vitamin C, Vitamin E, and Coenzyme Q10 are strong antioxidants that can protect against DNA damage caused by oxidative stress, which is a key factor in genomic instability.
- **Epigenetic Alterations:** Vitamins like Niacin (B3) and Riboflavin (B2) play roles in maintaining cellular metabolism and DNA repair, which may help in preserving epigenetic stability, crucial for preventing age-related gene expression changes.



- **Loss of Proteostasis:** Collagen hydrolysate contributes to maintaining skin's structural proteins. Protein misfolding and aggregation, key factors in loss of proteostasis, may be mitigated by ensuring proper protein turnover through adequate collagen supply.
- **Stem Cell Exhaustion:** Collagen and Hyaluronic Acid, combined with Vitamin A (beta-carotene), may promote tissue regeneration and skin cell renewal, indirectly supporting stem cell function by creating a healthier cellular environment.
- **Telomere Attrition:** Antioxidants like Vitamin C and Vitamin E help reduce oxidative stress, which is known to contribute to telomere shortening. These ingredients may indirectly help preserve telomere length by reducing DNA damage.

- **Autophagy Dysfunction:** Some ingredients, particularly Coenzyme Q10, can support autophagy, the process of clearing out damaged cellular components, which is essential for delaying age-related decline.
- **Mitochondrial Dysfunction:** Coenzyme Q10 is crucial for mitochondrial energy production and protecting mitochondria from oxidative damage. It supports healthy mitochondrial function, delaying age-related energy decline.
- **Cellular Senescence:** Antioxidants (Vitamin C, E, Coenzyme Q10) and Vitamin D3 can help reduce inflammation and oxidative stress, factors that drive cellular senescence. By reducing cellular stress, they may help slow down the accumulation of senescent cells.
- **Chronic Inflammation:** Zinc, Coenzyme Q10, and Vitamins C and E have anti-inflammatory properties, helping to reduce chronic low-grade inflammation, which is a hallmark of aging.
- **Dysbiosis:** While the product ingredients do not directly address gut health, the inclusion of anti-inflammatory and antioxidant components can help support overall immune health, which is connected to microbiome balance.
- **Deregulated Nutrient Sensing:** Zinc and Manganese are essential for cellular signaling and energy metabolism, which are key to nutrient-sensing pathways. These minerals help regulate processes like insulin signaling and AMPK pathways, vital for energy homeostasis and anti-aging interventions.
- **Altered Intercellular Communication:** Vitamin D3 and Vitamin A are key for immune function and cellular communication, both of which decline with age. Their presence in this booster could help maintain proper intercellular signaling.

- **Extracellular Matrix (ECM) Changes:** ECM changes refer to progressive stiffening and disorganization of the skin and organ-supporting matrix, leading to sagging, wrinkles, and compromised tissue integrity.
- **Psychosocial Isolation:** Psychosocial isolation is a newly recognized hallmark involving stress-induced biological aging, driven by loneliness, elevated cortisol, and neuroinflammatory responses.

Key Ingredients and Their Benefits:

1. Collagen Hydrolysate (6000mg)

- **Improves Skin Elasticity:** Helps increase skin hydration and reduces wrinkles.
- **Supports Joint Health:** Maintains joint flexibility and reduces discomfort.
- **Strengthens Hair and Nails:** Promotes growth by providing essential amino acids.

2. Hyaluronic Acid (100mg)

- **Deep Hydration:** Retains moisture, keeping the skin plump and hydrated.
- **Enhanced Skin Elasticity:** Minimizes the appearance of fine lines and wrinkles.
- **Joint Lubrication:** Supports joint fluidity and comfort.

3. Vitamin C (100mg)

- **Collagen Production:** Boosts the body's collagen synthesis, improving skin structure.
- **Antioxidant Protection:** Shields the skin from free radical damage.
- **Brightened Skin Tone:** Helps reduce hyperpigmentation and evens out skin tone.

4. Niacin (Vitamin B3, 16mg)

- Improved Skin Health: Enhances skin barrier function and hydration.
- NAD⁺ Boosting: Increases NAD⁺ levels, promoting cellular energy and longevity.
- Anti-Inflammatory: Reduces skin inflammation and supports clearer skin.

5. Coenzyme Q10 (15mg)

- Enhanced Cellular Energy: Boosts energy production, reducing fatigue.
- Antioxidant Defense: Protects cells from oxidative stress, slowing aging.
- Improved Skin Health: Reduces fine lines and wrinkles for a youthful complexion.

6. Additional Nutrients

- Vitamin E (12mg): Provides antioxidant protection for healthy skin.
- Riboflavin (Vitamin B2, 1.4mg): Supports energy metabolism and skin health.
- Vitamin A (Beta-Carotene, 800µg): Essential for skin health and antioxidant defense.
- Vitamin B12 (3µg): Important for energy production and neurological function.
- Biotin (150µg): Promotes healthy hair, skin, and nails.
- Vitamin D3 (15µg): Supports bone health and immune function.
- Lycopene (3mg): An antioxidant that protects the skin from UV damage.
- Manganese (1mg): Aids in collagen production and antioxidant defense.
- Iodine (75µg): Supports thyroid function and metabolism.
- Zinc (5.3mg): Enhances immune function and skin health.
- Iron (10mg): Essential for oxygen transport and energy production.

The NIANCE Premium Collagen-Hyaluron Beauty Booster is a comprehensive anti-aging supplement designed to support skin elasticity, hydration, joint health, and overall vitality. Key ingredients like Niacin and Coenzyme Q10 boost NAD+ levels, promoting cellular energy, longevity, and youthfulness. The synergistic blend of collagen, hyaluronic acid, vitamins and antioxidants offers a multi-faceted approach to maintaining a youthful appearance and wellness.

By incorporating this supplement into your daily routine, you can enjoy improved skin, stronger hair and nails, enhanced joint flexibility, and overall vitality—helping you look and feel your best at any age.

Conclusion

Aging is a multifaceted process driven by complex biological mechanisms, encapsulated in the 14 Hallmarks of Aging. These hallmarks provide a foundational understanding of the aging process, enabling the development of targeted interventions that address both the visible and underlying causes of aging. NIANCE has taken a scientifically grounded and holistic approach to skincare, integrating advanced biotechnology with the purest natural ingredients to create products that not only enhance the appearance of the skin but also promote overall cellular health and well-being.

The Importance of Targeted, Multifaceted Approaches

One of the key takeaways from this whitepaper is the importance of a targeted, multifaceted approach to anti-aging. Addressing multiple hallmarks simultaneously, as NIANCE products do, is essential for achieving comprehensive and long-lasting results. This approach recognizes that aging is a complex and interconnected process, influenced by a variety of factors at the cellular and systemic levels.

By leveraging ingredients that specifically target different hallmarks, such as mitochondrial dysfunction or altered intercellular communication, NIANCE products offer a more effective solution than those that address only surface-level concerns. This holistic strategy not only enhances skin appearance but also supports overall health and well-being, reflecting the growing consumer demand for products that contribute to both beauty and longevity.

Summary of Key Points

Comprehensive Understanding of Aging:

The 14 Hallmarks of Aging offer a framework that guides the development of effective anti-aging interventions. NIANCE has embraced this framework to create products that target these hallmarks comprehensively.

Innovative Ingredient Integration:

NIANCE's products, particularly those utilizing the Swiss Glacier Complex® and FERNESSE™ biotechnology, demonstrate the brand's commitment to innovation. These advanced formulations enhance the bioavailability and efficacy of key ingredients, providing significant anti-aging benefits.

Scientific Validation:

NIANCE products have undergone rigorous clinical trials and lab tests, which confirm their ability to provide long-lasting hydration, reduce wrinkles, and improve skin firmness and elasticity. This scientific validation ensures that NIANCE products deliver real, measurable results.

Holistic Approach:

NIANCE's approach to skincare goes beyond surface-level treatments, addressing the root causes of aging at the cellular level. This holistic strategy not only improves skin appearance but also supports overall health and longevity.

Environmental and Ethical Commitment:

NIANCE is dedicated to sustainability and ethical sourcing. The brand prioritizes environmentally friendly practices and ingredients, aligning with consumer demand for products that are both effective and responsible.

Final Recommendations

To achieve optimal results and promote healthy aging, the following recommendations are suggested:

Adopt a Holistic, Inside-Out and Outside-In Approach:

Achieving true longevity requires a comprehensive approach that nourishes the body both internally and externally. Incorporate NIANCE skincare products into your daily regimen to address the 14 Hallmarks of Aging from the outside, while complementing this with NIANCE longevity supplements, which support healthy aging from the inside. This dual-action method ensures a synergistic effect, maximizing benefits for both skin vitality and overall well-being.

Combine with Healthy Lifestyle Choices:

Supporting your beauty and longevity regimen with a balanced diet, regular physical activity, and adequate sleep further amplifies the results. A diet rich in antioxidants, vitamins, and minerals will support your skin and overall health, while effective stress management helps to reduce oxidative stress, one of the key drivers of aging. Together, these healthy lifestyle choices form the foundation of a holistic anti-aging strategy.

Stay Informed and Educated:

Stay connected to the evolving world of anti-aging science. Educate yourself about the ingredients in both your skincare products and longevity supplements to understand how they work in synergy to target the Hallmarks of Aging. Engage with NIANCE's educational platforms to receive personalized advice and to share your experiences with a community that's dedicated to health, beauty, and longevity.

Regularly Assess and Adjust Your Skincare and Supplement Regimen:

Just as your skin's needs change with age, so too should your routine. Regularly assess your skin and overall health, adjusting your NIANCE

skincare and supplement regimen as necessary. Consulting with skincare professionals and NIANCE experts will help you tailor your approach to address your unique aging concerns, ensuring optimal results.

By following these holistic recommendations and incorporating both NIANCE skincare products and longevity supplements, you can effectively address the 14 Hallmarks of Aging from all angles. This inside-out and outside-in approach promotes not only youthful, radiant skin but also supports overall vitality and longevity. NIANCE continues to lead the field in anti-aging, combining cutting-edge research, innovation, and a steadfast commitment to quality and sustainability. Through this dual-action strategy, NIANCE empowers you to age gracefully, maintaining beauty and well-being hand in hand throughout your journey.

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These references provide the scientific foundation and validation for the claims made in this white paper, illustrating the rigorous research and innovative approaches employed by NIANCE in developing its anti-aging skincare products.

Appendices



Dr. Patrick Schwarzentruher

Chairman of the Committee of
Microbiological Experts (Member of the
Board)

“There are many different skincare brands on the market, claiming the impossible to become possible but when testing them they cannot keep their promises. As a professional in this field I have tested many of them. NIANCE is different and truly rare on the market since they hold their promises – the formulas really work. NIANCE combines natural ingredients with the latest of scientific research and this at highest level. The unique Swiss Glacier Complex® – a powerful Elixir for the skin – comes with very effective actives focusing on the needs of every skin type. Luxurious textures round off the products and makes their application an event to be remembered for a long time.”

“I tried now long enough the super-combination of the Hydrating Mask INTENSIFY, the Premium Glacier Facial Cream and the Collagen-Hyaluron Beauty Booster: I really see an additional positive result by using the combination of the three products concerning the fine wrinkles. They are really less and that’s just fantastic. Also concerning the hydration of the skin NIANCE products are just optimal – I never had any dry skin (specially in winter time I normally had) and I never have any oily skin. I’m really convinced of the effectiveness of NIANCE products and I will continue using them.”



**Dr. med. Salomé
Courvoisier**
Dermatologist



Dr. med Svetlana Botasheva

Gynecologist

“In my practice, for already quite some time and with a lot of success, I am using Premium Collagen – Hyaluron Beauty Booster. Positive feedback from the patients (condition of pelvic organs, vessels, endometrium), proven by ultrasound, allows me to recommend it. And, of course, beauty effect – nails, hair, and skin get much better! I also drink it myself.”

“We have chosen NIANCE because we were looking for a very high-level Swiss skincare product and we found in NIANCE exactly what we wanted. Safe product, high-level product, very efficient product and I am glad about this choice.”



Dr. Lorenz Schmid

Chief Pharmacist
TopPharm Apotheke Paradeplatz Zurich



Dr. med Roger Gmuier

Doctor, Plastic and
Reconstructive Surgery
Klinik Tiefenbrunnen

“After establishing our cooperation with NIANCE in 2018 we were focusing on a line of skincare products for our male clients, who appreciate the „look & feel“ of these high quality products catering specifically for them. Complimenting the external effects of these products, we recommend NIANCE Premium Collagen-Hyaluron Beauty Booster to promote well-being and beauty from the inside.”

Contact Information

How to Reach NIANCE

For inquiries, feedback, or more information about our products, please contact us through the following channels:

- Website: www.niance.com
- Email: info@niance.com
- Customer Service Phone Number: +41 44 991 31 31
- Mailing Address: Swiss Health & bioBeauty AG Seestrasse 39, CH – 8700 Küsnacht (ZH), Switzerland

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Acknowledgments

Contributors and Supporters

We extend our deepest gratitude to the following individuals and organizations whose contributions and support have been instrumental in the development and success of NIANCE:

- Research and Development Team: For their dedication to innovation and excellence in creating groundbreaking skincare solutions.
- Clinical Trial Participants: For their participation and feedback, which have been crucial in validating the efficacy of our products.
- Marketing and Communication Team: For their efforts in sharing our vision and products with the world.
- NIANCE Customers: For their trust and loyalty, inspiring us to continue delivering the highest quality skincare and wellness products.
- Collaborating Laboratories: For their rigorous testing and research, ensuring the safety and effectiveness of NIANCE products.

Glossary

Definitions of Technical Terms

- AQP3 (Aquaporin-3): A protein that forms water channels in cell membranes, facilitating hydration and moisture retention in the skin.
- Autophagy: The process by which cells remove damaged components and recycle cellular debris, promoting cellular health and longevity.
- Bioavailability: The degree to which a substance is absorbed and utilized by the body.
- Corneometry: A method used to measure the hydration level of the stratum corneum (the outermost layer of the skin).
- Cutometry: A technique used to assess the elasticity and firmness of the skin by measuring its ability to return to its original state after being stretched.
- Elastometry: A method used to evaluate the elastic properties of the skin by measuring its deformation under a controlled force.
- Epigenetic Modulators: Compounds that influence gene expression without altering the DNA sequence, often used to restore youthful cellular function.
- FERNESSE™ Biotechnology: NIANCE's proprietary technology that enhances the bioavailability and efficacy of active ingredients through pre-, pro-, and post-biotic mechanisms.
- FLG (Filaggrin): A protein involved in the formation of the skin barrier and hydration, crucial for maintaining skin health.
- Genomic Instability: The tendency of an organism's DNA to acquire mutations over time, leading to cellular dysfunction and aging.
- Immunofluorescence: A laboratory technique used to visualize the presence and location of specific proteins within cells using fluorescently labeled antibodies.
- NAD⁺ (Nicotinamide Adenine Dinucleotide): A coenzyme involved in cellular energy production and repair processes, essential for maintaining cellular health.

- ORAC (Oxygen Radical Absorbance Capacity) Assay: A test that measures the antioxidant capacity of a substance, indicating its ability to neutralize free radicals.
- Profilometry: A technique used to measure the roughness and smoothness of the skin surface.
- ROS (Reactive Oxygen Species): Chemically reactive molecules containing oxygen, which can cause oxidative damage to cells and contribute to aging.
- TEWL (Transepidermal Water Loss): A measure of the amount of water that evaporates from the skin, used to assess the integrity of the skin barrier.
- Telomeres: Protective caps at the ends of chromosomes that shorten with each cell division, leading to cellular aging and senescence.

These sections provide essential contact information, acknowledgments to contributors and supporters, and clear definitions of technical terms used throughout this white paper. This enhances the reader's understanding and appreciation of the comprehensive efforts behind NIANCE's innovative skincare solutions.